

CLAIMS

What is claimed is:

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1. A screw and rod fixation assembly for fixing a screw and a rod comprising:
a screw including a screw head;
fixing means for fixing said screw from movement relative to said
10 assembly, said fixing means including an inner surface wall having a gripping portion and a non-gripping portion;
a substantially annular ring including an edge portion extending about a centered axis, said edge portion having a frustoconical surface tapering outwardly toward said edge portion for engaging said screw head while
15 allowing a portion of said screw to pass therethrough;
rod seating means operatively engaged with said fixing means for seating a rod therein including at least one flexible portion capable of being compressed against a rod seated within said rod seating means, wherein said at least one flexible portion has a tapered outer surface end; and
20 locking means for securing and engaging the rod and rod seating means including at least one flexible portion, said locking means including deflecting means for deflecting said at least one flexible portion of the rod seating means against and around the rod as said locking means further engages said at least one flexible portion of said rod seating means.

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2. The screw and rod fixation assembly according to claim 1, wherein said fixing means includes a substantially tubular body.
3. The screw and rod fixation assembly according to claim 2, wherein said
30 substantially tubular body further includes spaced, substantially parallel arms extending from said substantially tubular body.

4. The screw and rod fixation assembly according to claim 1, wherein said gripping portion of said inner surface wall of said fixing means is expanded within an elastic range of said inner surface wall by said screw head.
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5. The screw and rod fixation assembly according to claim 1, wherein a portion of said inner surface wall of said fixing means is threaded.
6. The screw and rod fixation assembly according to claim 1, wherein said rod seating means includes a body portion from which at least one said flexible portion extends therefrom.
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7. The screw and rod fixation assembly according to claim 1, wherein said locking means is defined as a set screw including a threaded outer surface for operatively engaging said threaded inner surface of said fixing means.
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8. The screw and rod fixation assembly according to claim 7, wherein said set screw further includes a spherical, inner chamber for accommodating said at least one flexible portion when said at least one flexible portion is contoured around the rod situated therein.
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9. A screw fixation device comprising fixing means for selectively fixing a screw head, said fixing means including an inner surface wall having a gripping portion for fixedly gripping the screw head.
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10. The screw fixation device according to claim 9, wherein said gripping portion of said inner surface wall is expanded by the screw head within an elastic range by the screw head.
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11. The screw fixation device according to claim 9, wherein said fixing means includes a substantially tubular body.

12. The screw fixation device according to claim 11, wherein said substantially tubular body includes spaced, substantially parallel arms extending from said substantially tubular body.
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13. The screw fixation device according to claim 11, wherein said substantially tubular body has a proximal end and a distal end, wherein said distal end is interiorly tapered for securing the screw head therein.
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14. The screw fixation device according to claim 11, wherein said substantially tubular body has at least one aperture extending radially through said inner surface wall.
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15. The screw fixation device according to claim 9, wherein a portion of said inner surface wall is threaded.
16. The screw fixation device according to claim 9, wherein said fixing means is made from semi-flexible material selected from the group consisting of metal, plastics, alloys, polymers, fibers, and combinations thereof.
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17. An apparatus for fixedly gripping and securing a screw head comprising a passageway including side-walls and inherent locking means for gripping and locking the screw head as the screw head enters through said passageway and into said locking means.
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18. The apparatus according 17, wherein said passageway includes a substantially tubular body.
19. The apparatus according to claim 17, wherein said locking means is
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- defined as a semi-flexible portion of said sidewall.

20. A rod receiving device comprising rod seating means for seating a rod therein including at least one flexible portion capable of being compressed against a rod seated within said rod seating means, wherein said flexible portion has a tapered outer surface end.

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21. The rod receiving device according to claim 20, wherein said rod seating means includes a body portion from which said at least one flexible portion extends therefrom.

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22. The rod receiving device according to claim 20, wherein said tapered outer surface end has at least one tab extension radially extending from said tapered surface for engaging and locking into at least one aperture situated on a substantially tubular body.

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23. A locking member for securing and engaging a rod and rod seating means including at least one flexible portion, said locking member including deflecting means for deflecting the at least one flexible portion of the rod seating means against and around the rod as said locking member further engages the at least one flexible portion of the rod seating means.

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24. The locking member according to claim 23 is a set screw including a threaded outer surface.

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25. The locking member according to claim 23, wherein said set screw further includes a spherical, inner chamber for accommodating at least one flexible portion of the rod seating means.

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26. The locking member according to claim 23, wherein said set screw further includes a tapered, inner chamber for accommodating at least one flexible portion of the rod seating means.

27. A substantially annular ring comprising an edge portion extending about a centered axis, said edge portion having a frustoconical surface tapering outwardly toward said edge portion for engaging a screw head while allowing a portion of the screw to pass therethrough.

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28. The substantially annular ring according to claim 27, wherein said edge portion includes a gap portion.

29. A screw and rod fixation assembly comprising:

10 fixing means for fixing a screw, said fixing means including an inner surface wall having a gripping portion and a non-gripping portion, and at least one aperture extending through said inner surface wall; and rod seating means operatively engaged to said fixing means for seating a rod therein including at least one flexible portion capable of
15 being compressed against a rod seated within said rod seating means, wherein said flexible portion has a tapered outer surface and at least one tab means radially extending from said tapered outer surface for operatively engaging and inserting into said at least one aperture of said inner surface wall.

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30. A screw fixation assembly for fixing a screw and a rod comprising:

fixing means for fixing a screw, said fixing means including an inner surface wall having a gripping portion and a non-gripping portion and at least one indentation thereon; and
25 plug securing means engaged on a portion of a rod for securing the rod within said fixing means, said plug means including extension tabs means for engaging said at least one indentation of said inner surface wall.

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31. A screw and rod fixation assembly for fixing a screw and a rod

30 comprising:

a screw including a head portion;

fixing means for fixing said screw from movement relative to said assembly, said fixing means including an inner surface wall having a semi-flexible gripping portion and a non-gripping portion;

5 rod seating means operatively engaged with said fixing means for seating a rod therein including at least one flexible portion capable of being compressed against a rod seating within said rod seating means; and

locking means for securing and engaging the rod seating means including at least one flexible portion, said locking means including deflecting
10 means for deflecting said at least one flexible portion of said rod seating means against and around the rod as said locking means engages said at least one flexible portion of said rod seating means.